



App No.: 10/747,855  
Docket No.: P0633.70014US01  
Inventor: Leonid A. Kozhemyakin et al.  
Title: METHODS FOR PRODUCTION OF THE  
OXIDIZED GLUTATHIONE COMPOSITE  
WITH, etc.  
REPLACEMENT SHEET

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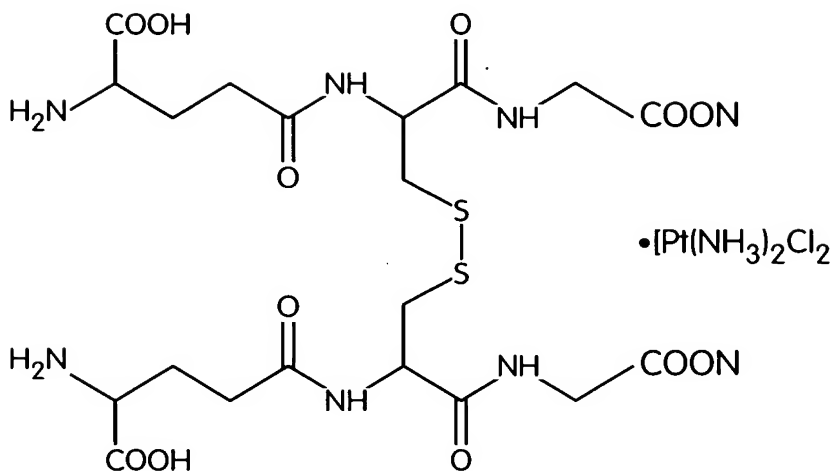


Fig. 1



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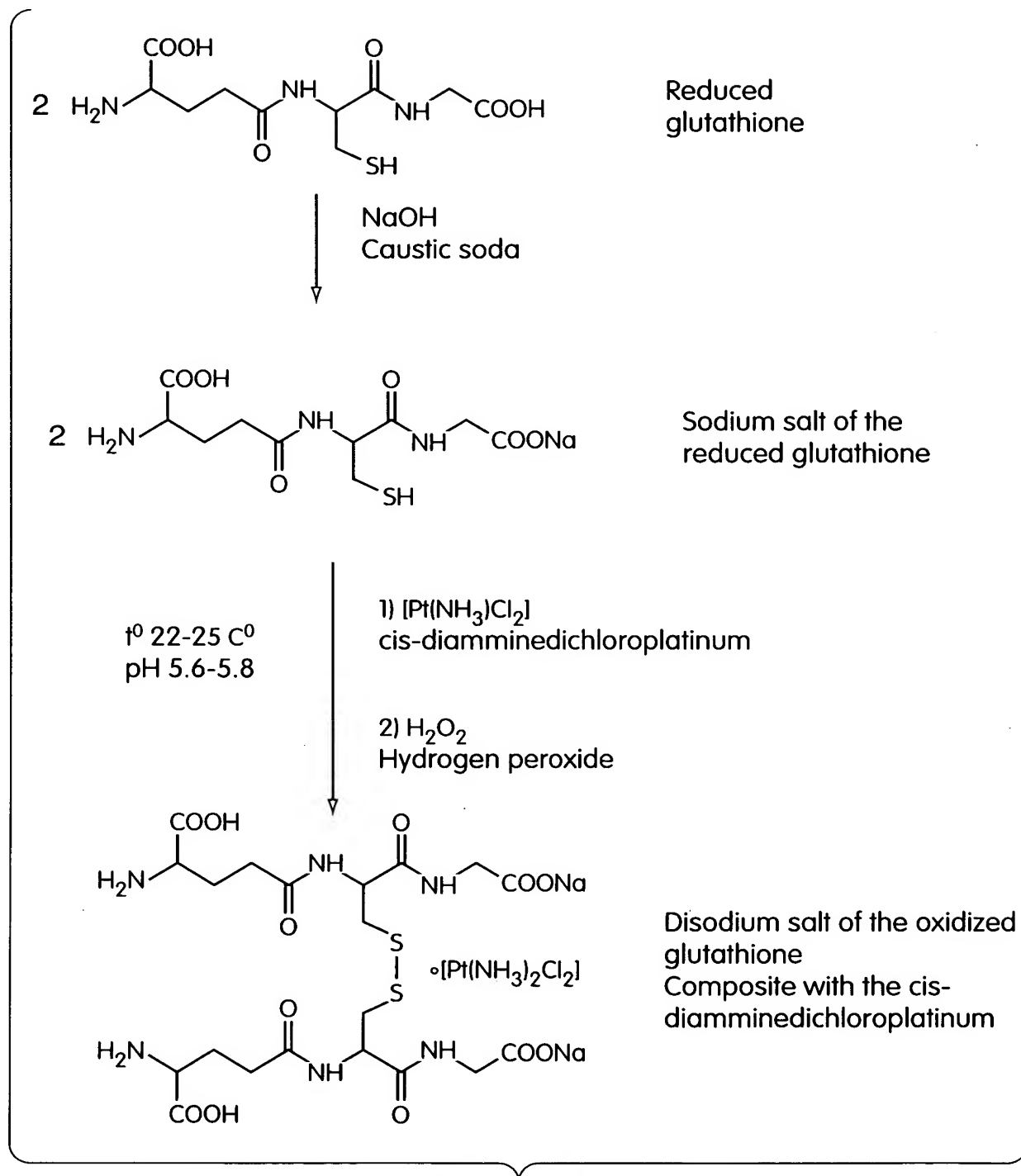


Fig. 2



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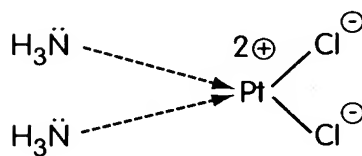


Fig. 3

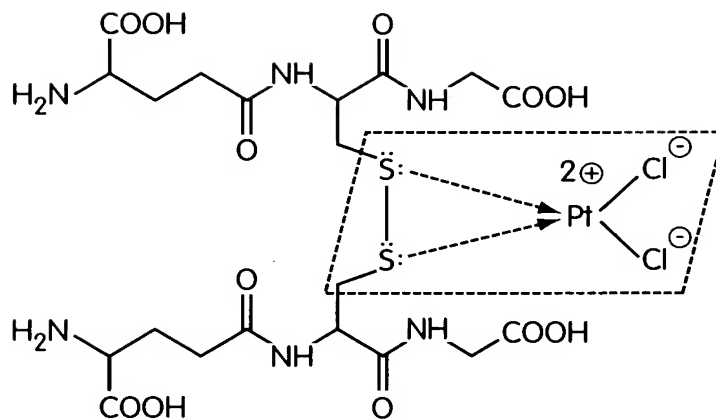


Fig. 4

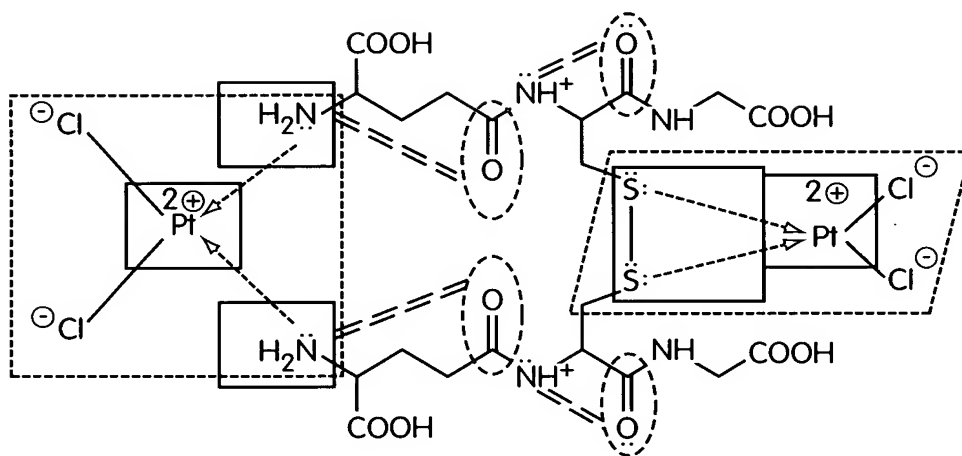


Fig. 5



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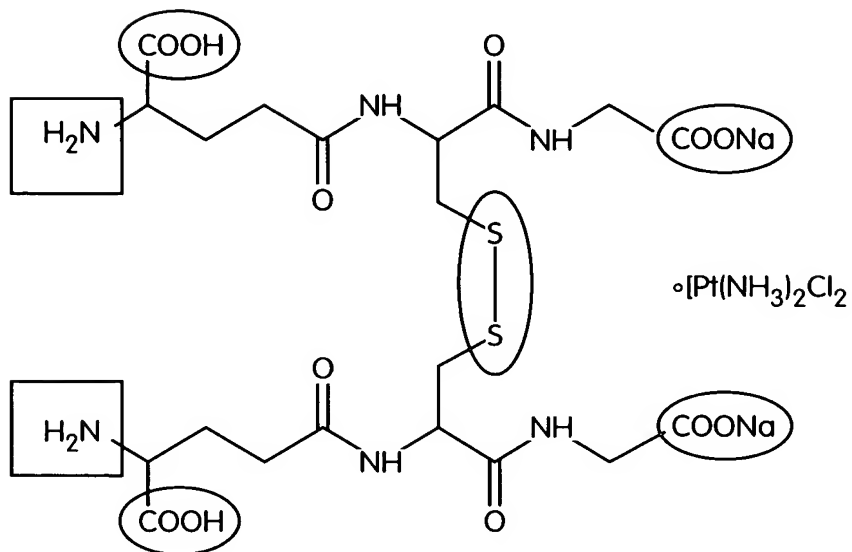


Fig. 6

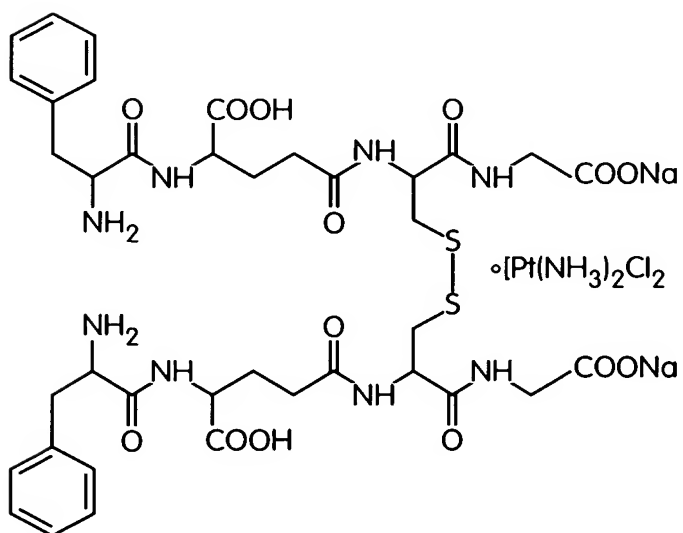


Fig. 7



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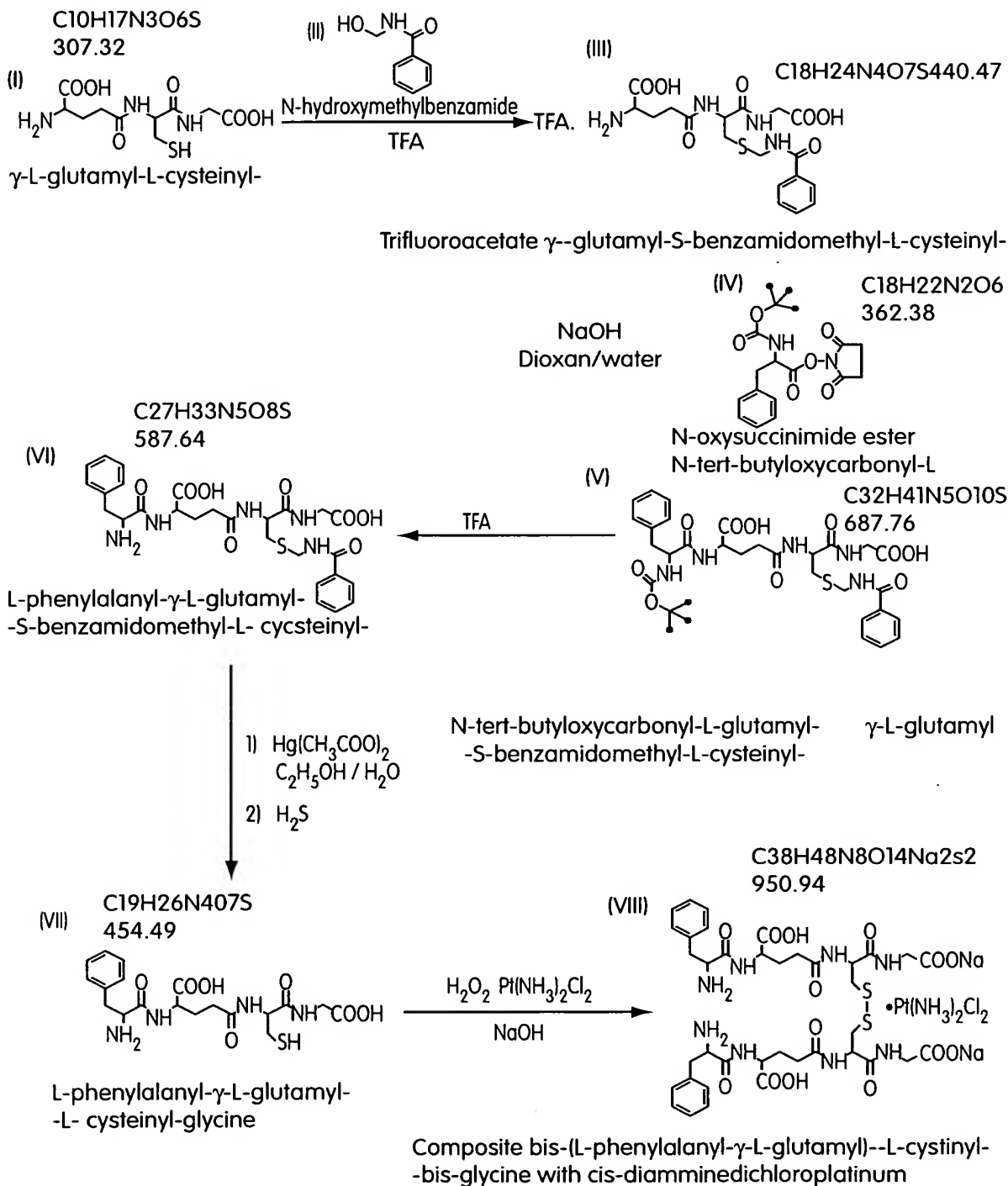


Fig. 8



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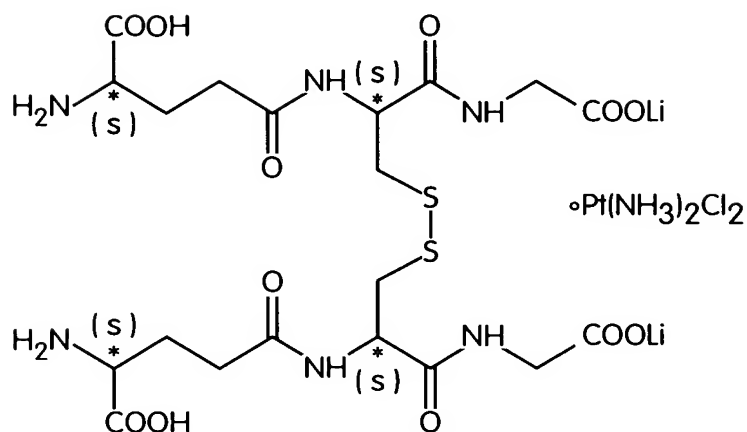


Fig. 9

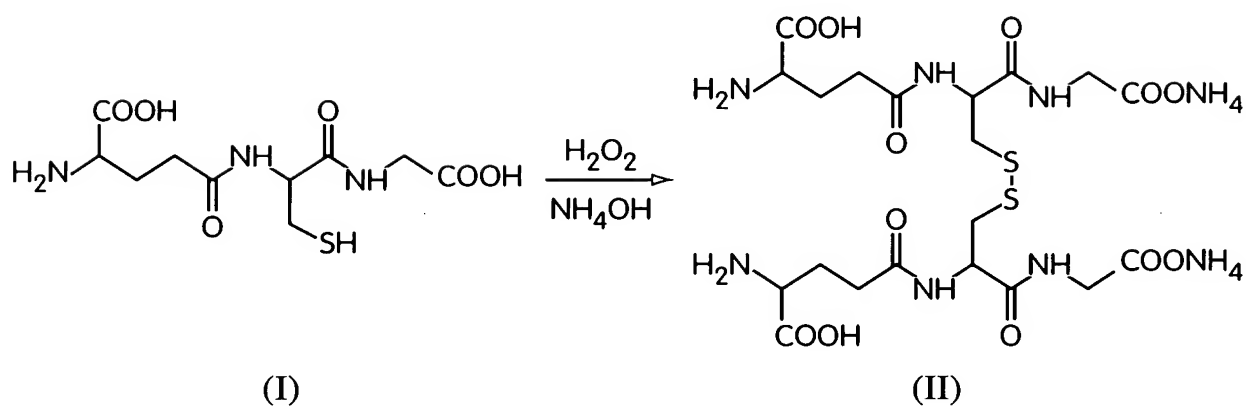


Fig. 10



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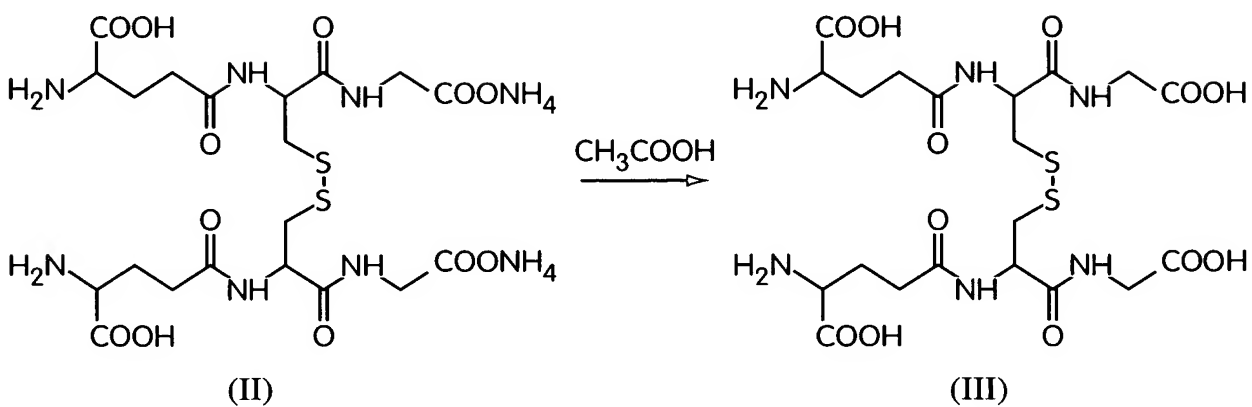


Fig. 11

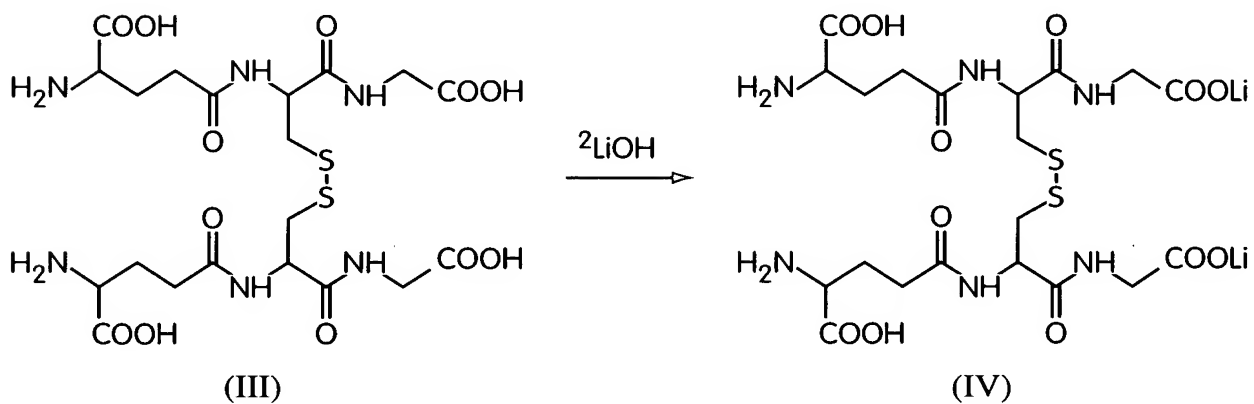


Fig. 12





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Fig. 13

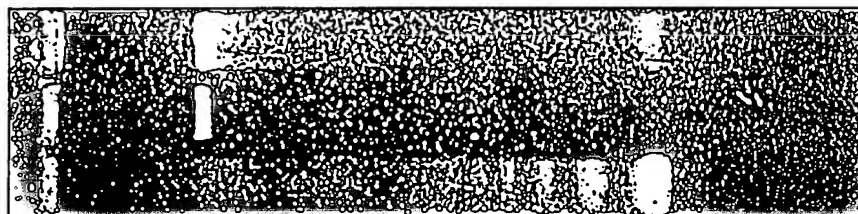


Fig. 14



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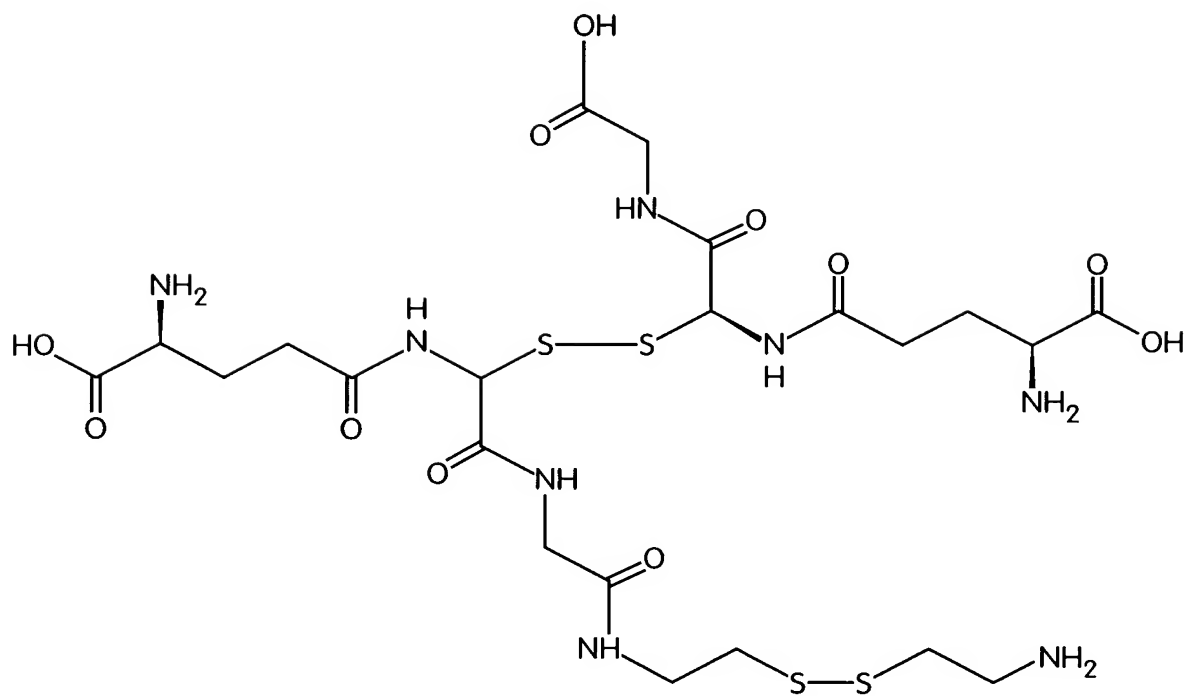


Fig. 15a



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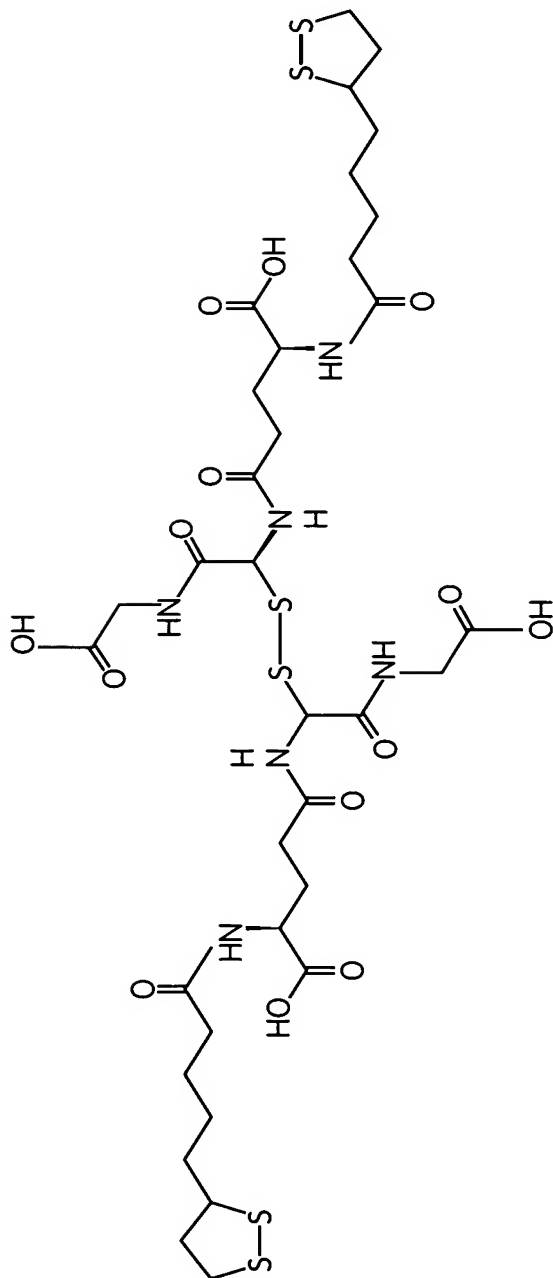


Fig. 15b



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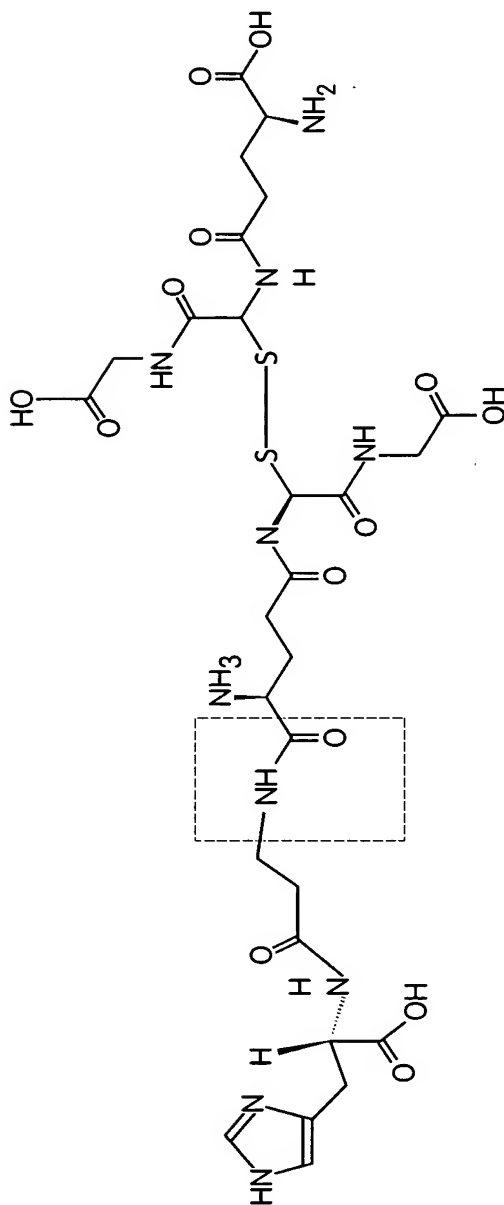


Fig. 15c



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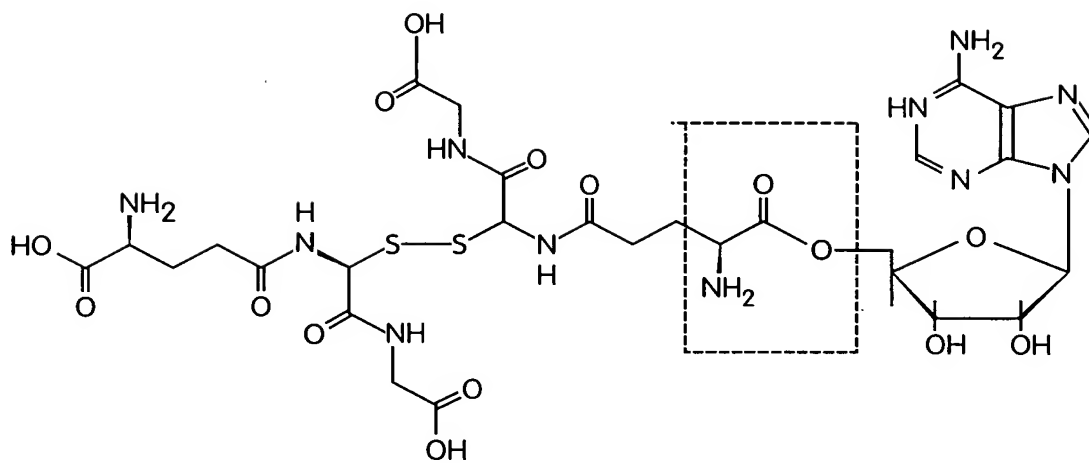


Fig. 15d



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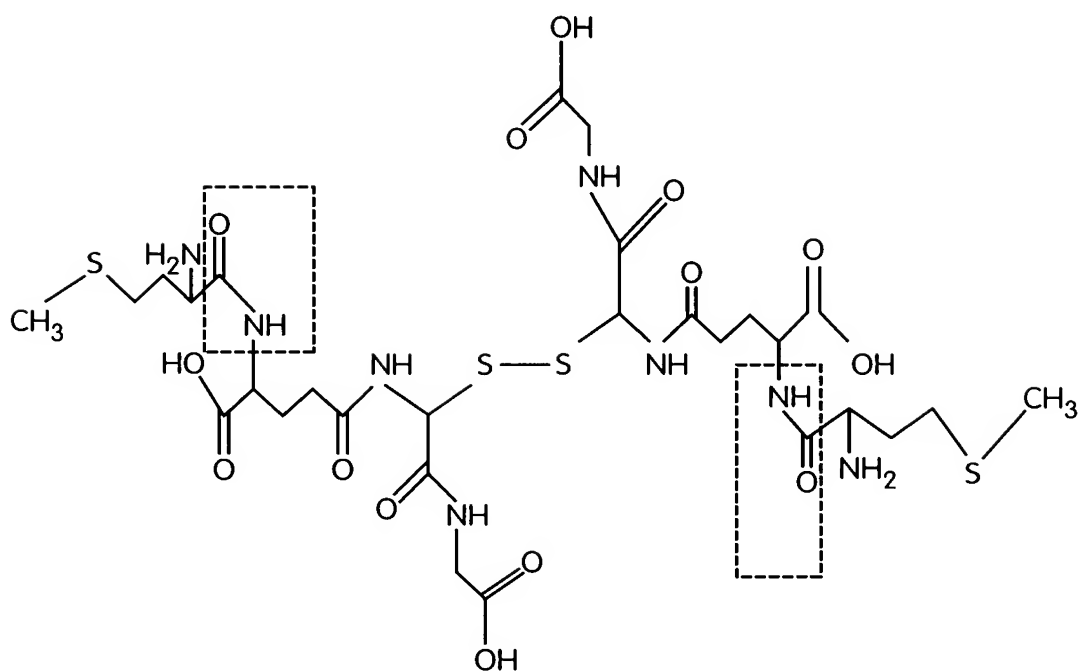


Fig. 15e



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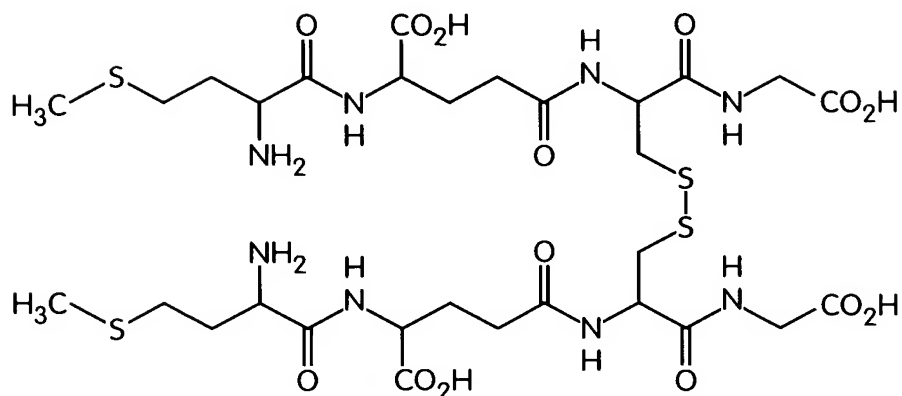


Fig. 16a

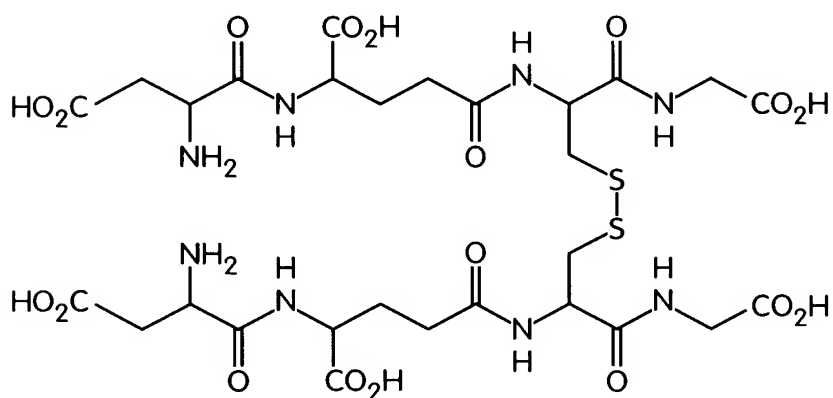


Fig. 16b

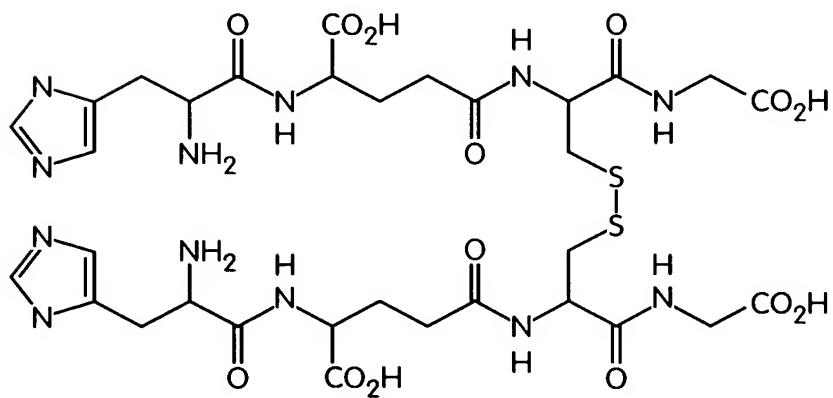


Fig. 16c



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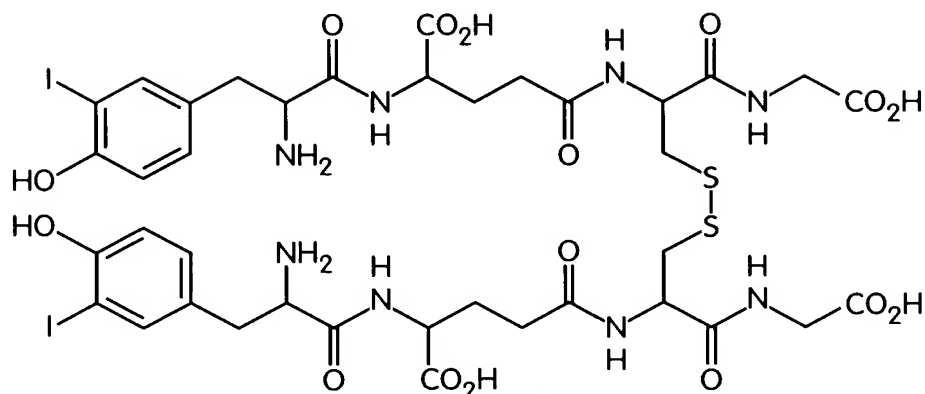


Fig. 16d

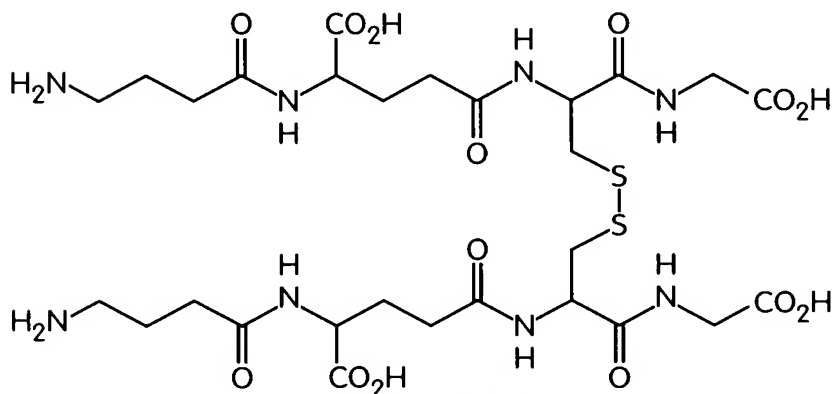


Fig. 16e

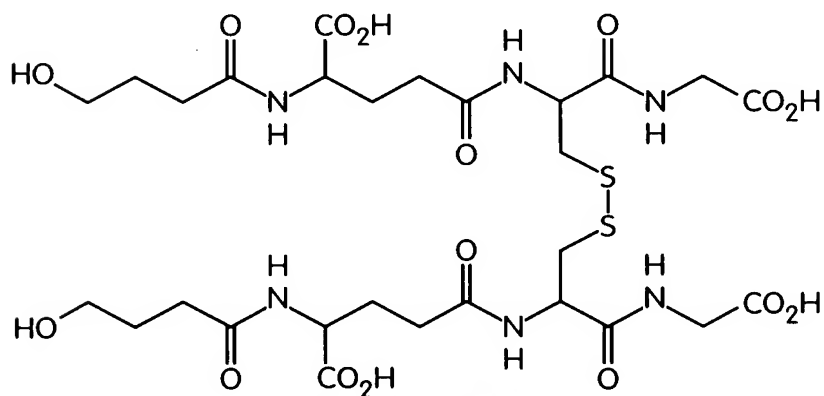


Fig. 16f





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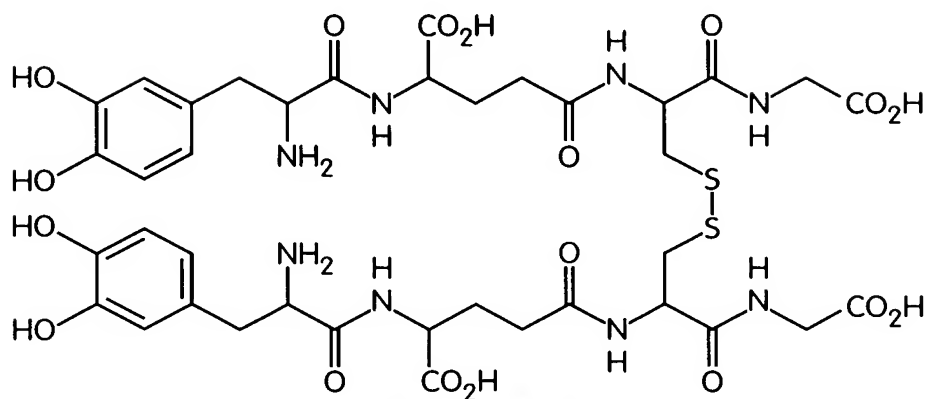


Fig. 16g

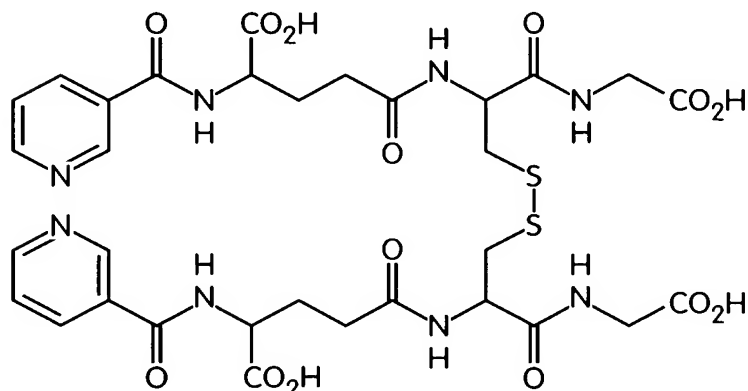


Fig. 17a

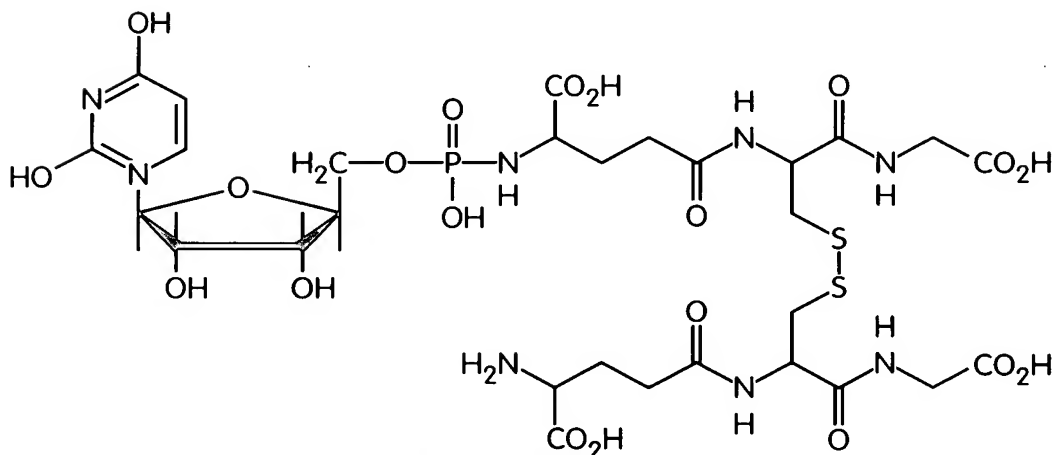


Fig. 17b



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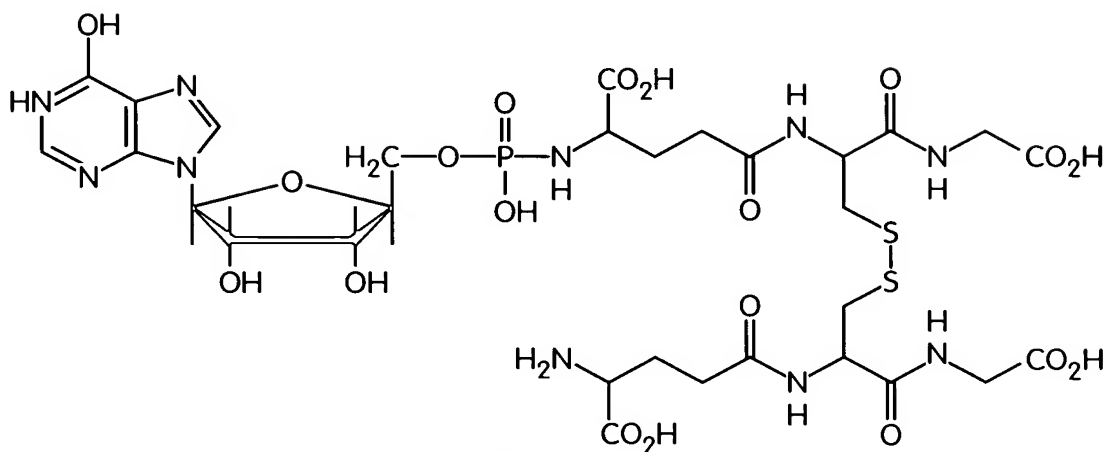


Fig. 17c

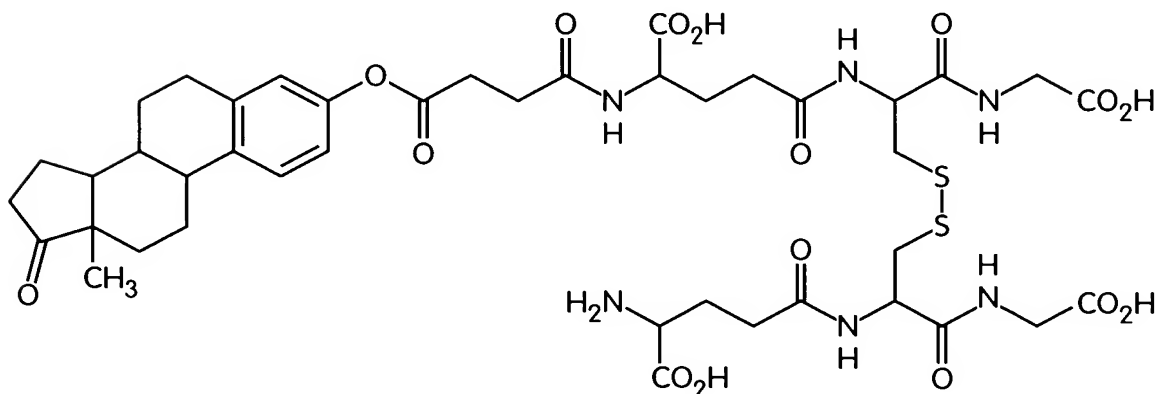


Fig. 17d

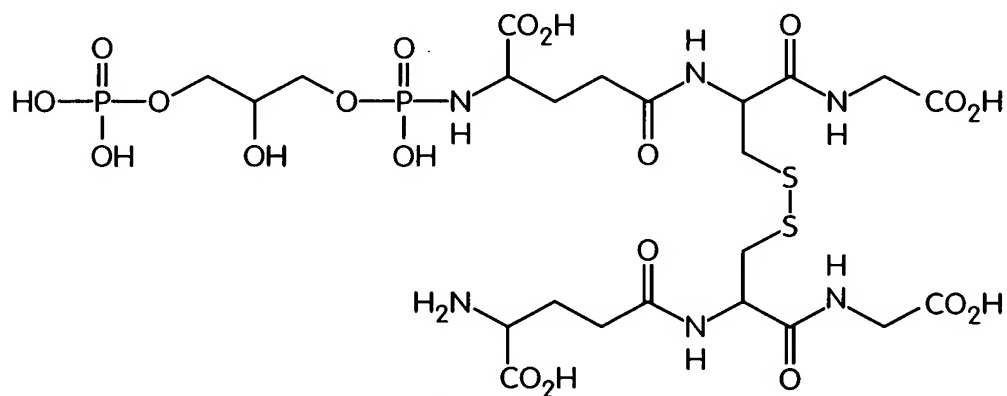


Fig. 17e



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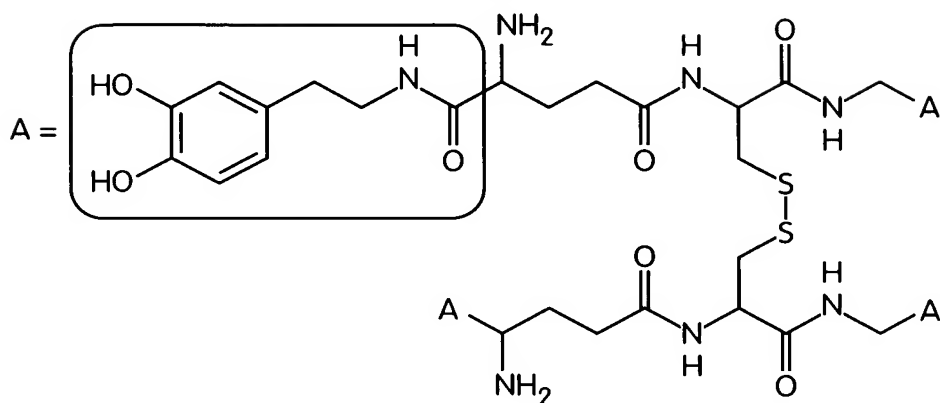


Fig. 18a

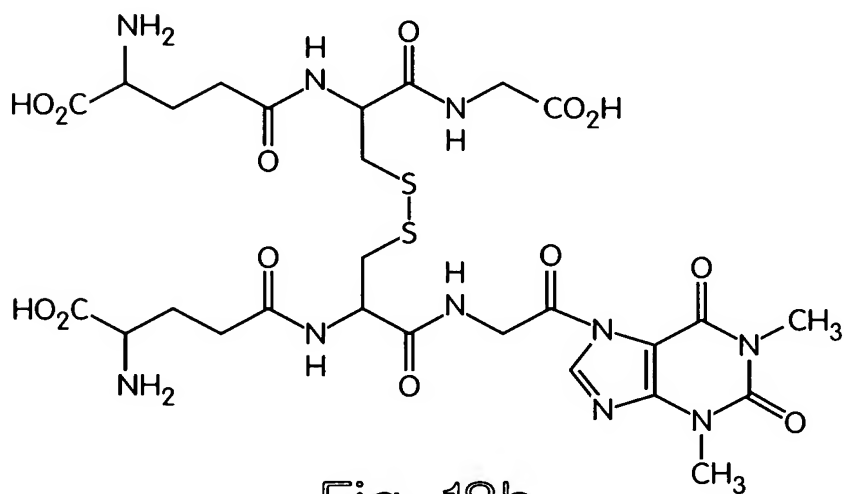


Fig. 18b

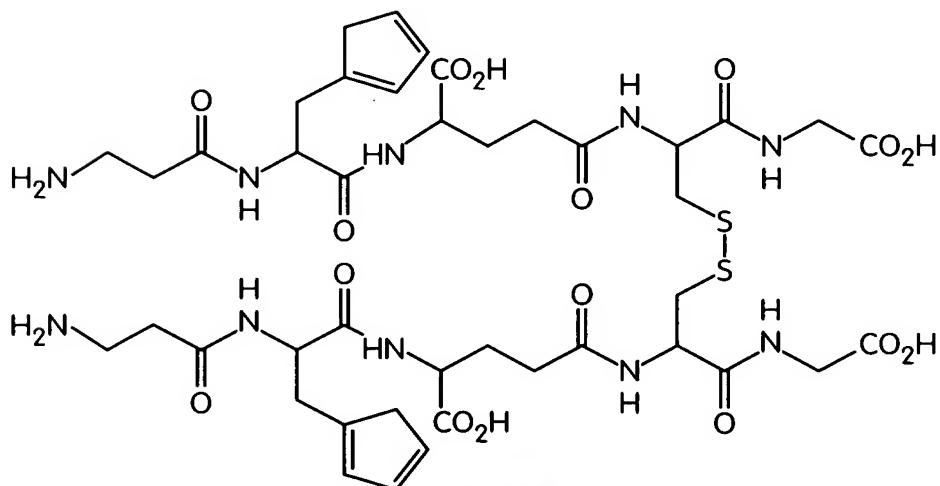


Fig. 19a

NC(C(=O)O)CCC(=O)NC(C(=O)NCCS)SCC(=O)NCCS

The chemical structure shows a cyclic peptide with two disulfide bridges. The backbone consists of two repeating units, each containing an amide bond and a disulfide bridge. The side chains include a carboxylic acid group (CO<sub>2</sub>H) and an amino group (H<sub>2</sub>N). The structure is drawn in a circular fashion, with the disulfide bridges connecting the two units.

Fig. 20c



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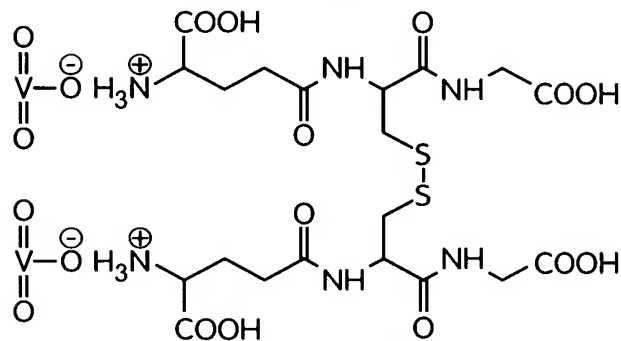


Fig. 21a

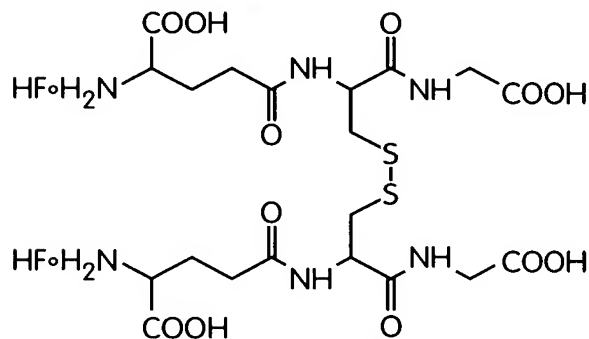


Fig. 21b

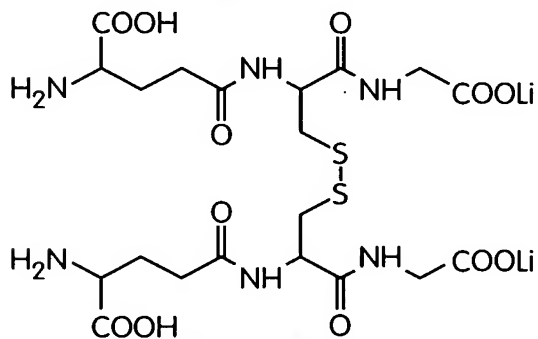


Fig. 21c

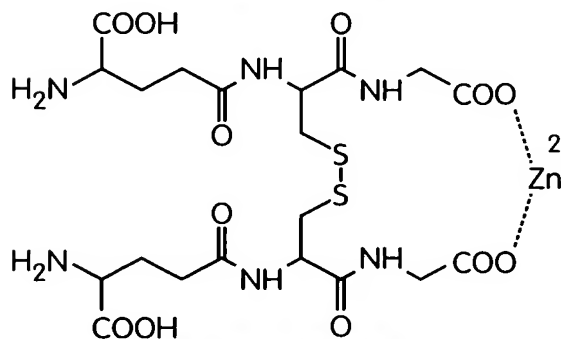


Fig. 21d



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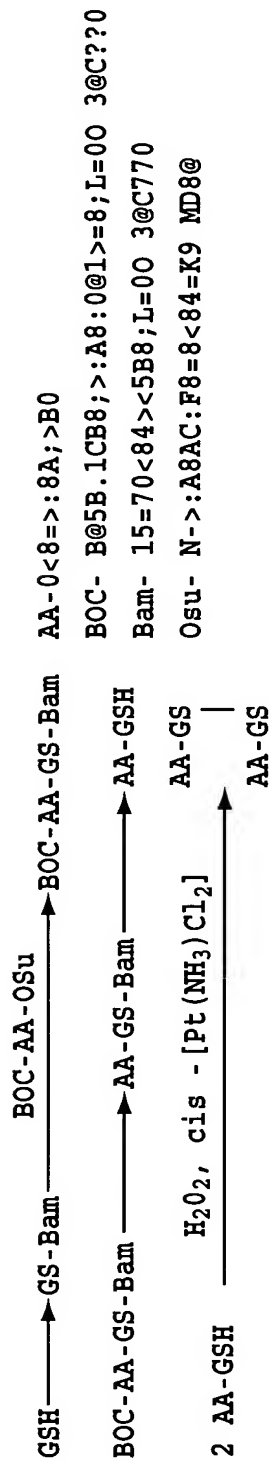


Fig. 22



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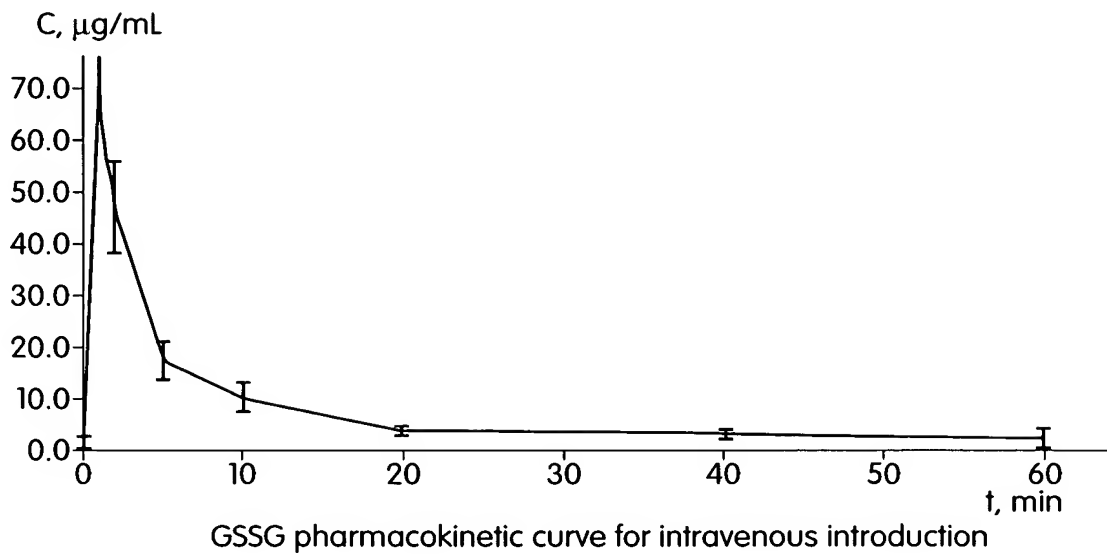


Fig. 23

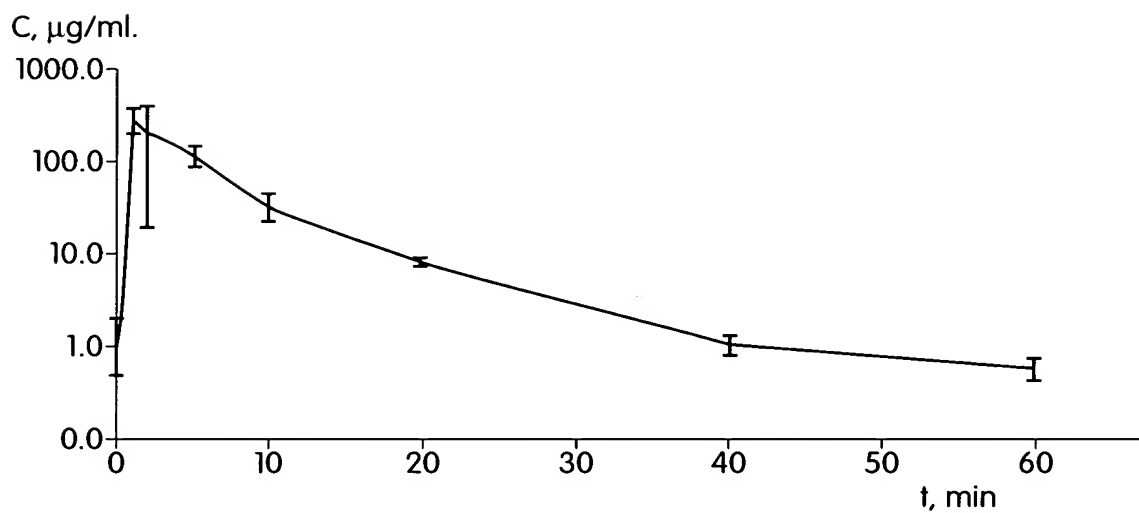


Fig. 24



Chart 1: Immune System Response to  
Cancers and Diseases

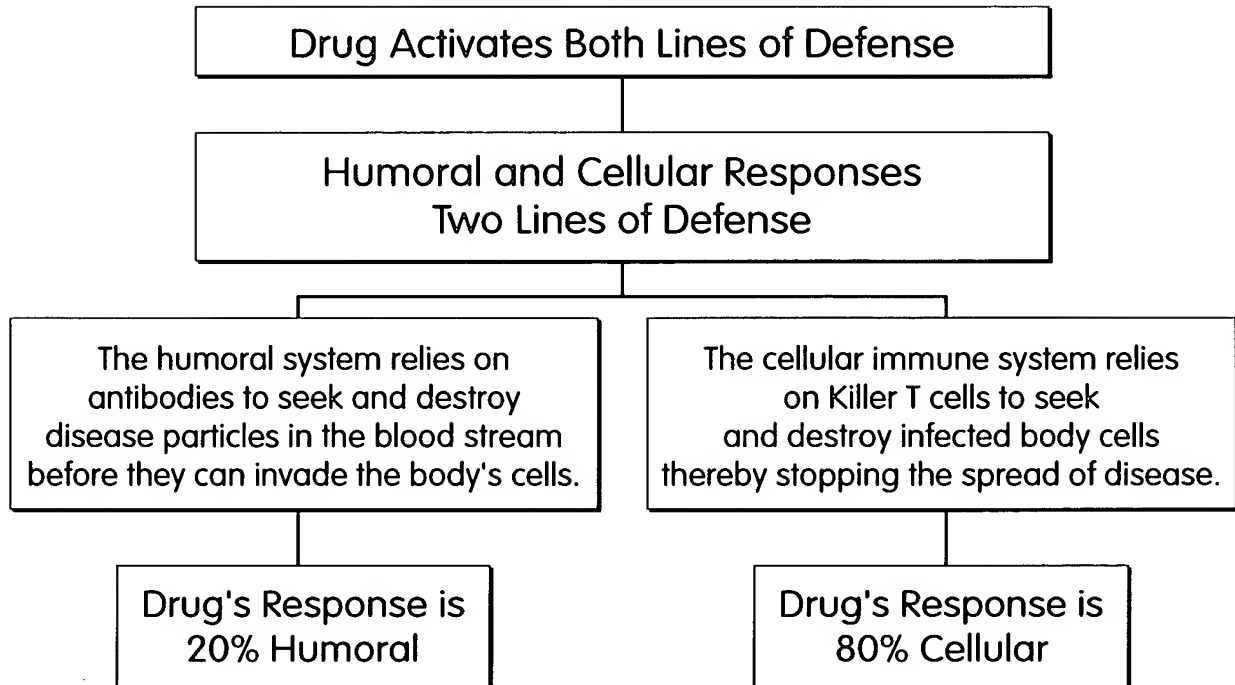


Fig. 25





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Chart 2: Drug Activates Immune System to Fight Cancers and Disease

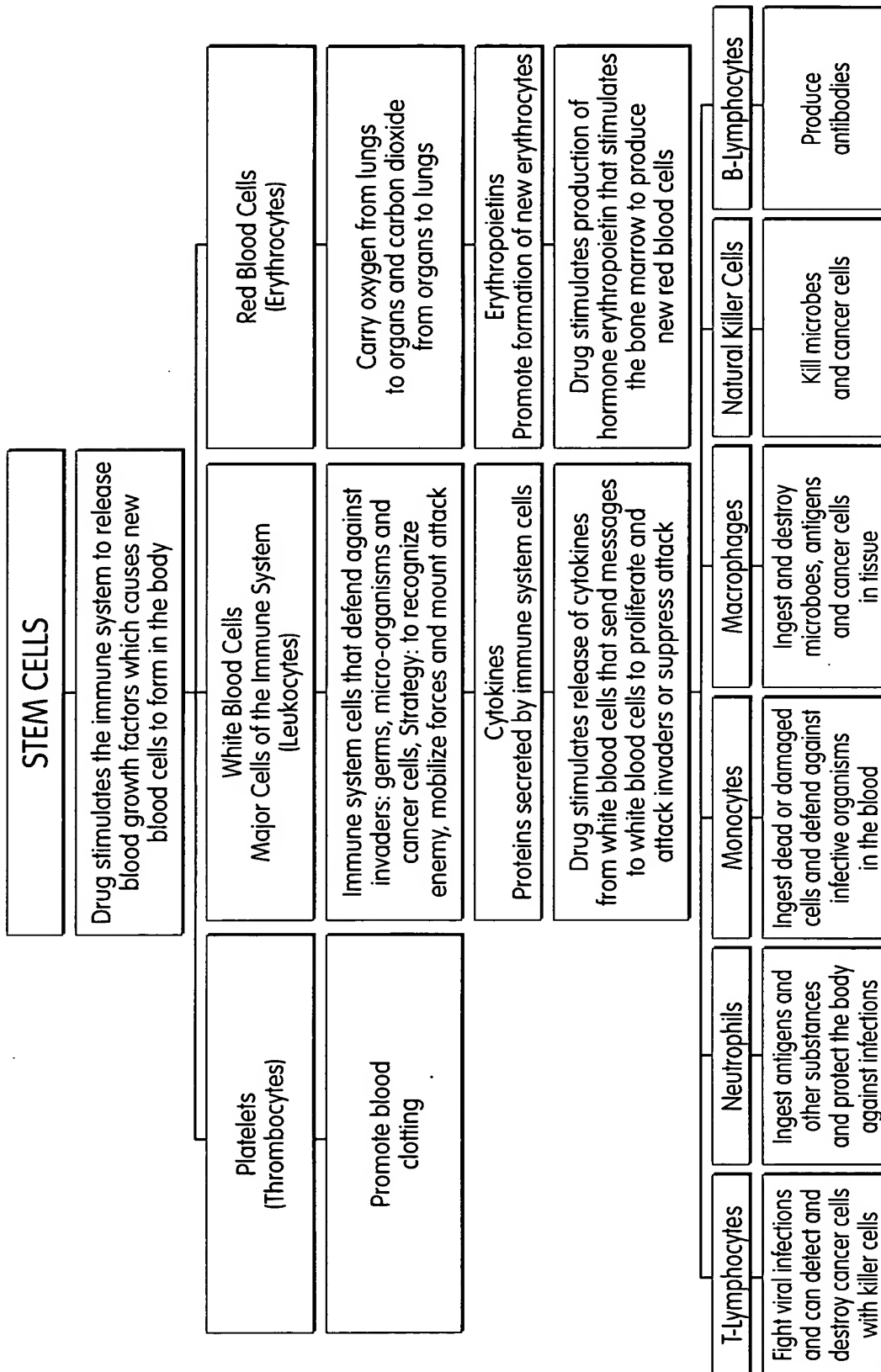


Fig. 26



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Chart 3: Cytokines Stimulated by Drug

Cytokines Stimulated by drug									
Interleukin-1 (IL-1)	Interleukin-2 (IL-2)	Interleukin-4 (IL-4)	Interleukin-6 (IL-6)	Interleukin-8 (IL-8)	Interleukin-10 (IL-10)	Interleukin-12 (IL-12)	Interferon alpha and gamma	TNF-alpha	GM-CSF
Is produced by monocytes, macrophages and dendritic cells.	Is produced by lymphocytes. It is a T-cell growth factor	Is released by T helper cells of the TH2 subtype and is particularly active	Is secreted by monocytes, macrophages and bone marrow cells. It	Is a powerful chemotactic factor for neutrophils. Macrophages and	suppresses cytokine production from T cells and macrophages. It exerts complex	Is secreted by B cells and macrophages and acts in synergy with IL-2 to activate	activates cells effective in treating several forms of hepatitis, genital	destroys cancer cells, but does not hurt healthy cells. Tumors injected	stimulates the production of neutrophils and is given to patients
It activates lymphocytes and there by regulates	and stimulates lymphocytes that have already been activated	on resting and active B cells. On resting B cells and on macrophages	acts on proliferating B cells to promote differentiation into plasma cells and it	endothelial cells secrete IL-8 in order to attract neutrophils and allow them to	regulatory effects on CD8 + T cells, Natural Killer cells, vascular endothelial	cytotoxic T cells. Natural Killer cells and Th1 cells are also	warts, Kaposi's sarcoma, hairy cell leukemia and malignant melanoma.	with TNF- alpha hemorrhage, soften and turn black. Macrophages begin	who have low numbers of neutrophils due to chemotherapy.
Immune responses usually associated with non-specific immune response	by cancer antigens so only those lymphocytes that recognize cancer	IL-4 increases MHC II expression. On activated B cells, proliferation and	stimulates antibody secretion. Myeloid stem cells are helped to differentiate	adhere to vascular endothelial cells. This helps neutrophils to migrate and enter	cells and B lymphocytes. IL-10 plays an important inhibitory	proliferate by IL-12.	In 1996, Biogen received FDA approval to market AVONEX for multiple sclerosis.	to pump-out huge amounts of TNF when they are recruited to the scene	
of infection and inflammation, and fever.	cells would receive IL-2's chemical message to expand. For example,	differentiation is stimulated and an antibody class switch is induced.	by IL-6. It also strongly stimulates hepatocytes to make acute phase proteins	the tissue where they are needed, especially during inflammation and	role and acts on macrophages to inhibit cytokine production to downregulate				
	T-lymphocytes exposed to malignant melanoma	A B cell stimulated with IL-4 alone becomes a plasma cell secreting IgE	in response to inflammation. This cytokine is always found in increased	infection. Neutrophils are the first line of defense against invading bacteria	TH1 type of T helper cells. It is released by TH2 helper cells and also				
	or kidney cancer have been retrieved from the body and exposed in the lab	and other allergy-related antibodies. IL-4 acts with IL-10 in an immuno-	levels in sites of inflammation and is likely very important in a	and are found in all areas of infection.	downregulates MHC II expression on antigen presenting cells. It interacts with IL-4				
	to IL-2 to create lymphocyte-activated killer cells which are re-injected into	regulatory manner to decrease the activity of a activated macrophages.	number of undescribed ways in inflammatory regulation.		to decrease macrophage inflammatory activity.				
	the body, then killer cells will attack the cancer and destroy it.								

Fig . 27